



Attorney Docket No.: PATENT
SSI-00700

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Maximilian A. Biberger et al.

Serial No.: 09/704,641

Filed: November 1, 2000

For: **METHOD AND APPARATUS FOR
SUPERCritical PROCESSING
OF A WORKPIECE**

Group Art Unit:

Examiner:

**INFORMATION DISCLOSURE
STATEMENT**

260 Sheridan Avenue, Suite 420
Palo Alto, California 94306
(650)833-0160

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

The citations listed below, copies attached, may be material to the examination of the above-identified application, and are therefore submitted in compliance with the duty of disclosure defined in 37 C.F.R. §§ 1.56 and 1.97. The Examiner is requested to make these citations of official record in this application.

Applicants have become aware of the following printed publications which may be material to the examination of this application:

- U.S. Patent No. 2,617,719;
- U.S. Patent No. 3,890,176;
- U.S. Patent No. 3,900,551;
- U.S. Patent No. 4,029,517;
- U.S. Patent No. 4,091,643;
- U.S. Patent No. 4,341,592;
- U.S. Patent No. 4,474,199;
- U.S. Patent No. 4,475,993;
- U.S. Patent No. 4,601,181;
- U.S. Patent No. 4,693,777;
- U.S. Patent No. 4,749,440;
- U.S. Patent No. 4,788,043;

- 1 -

CERTIFICATE OF MAILING (37 CFR § 1.8(a))
I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Assistant Commissioner for Patents, Washington D.C. 20231

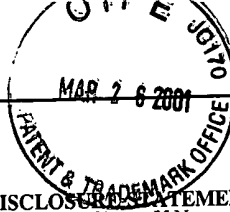
HAVERSTOCK & OWENS LLP.
Date: 3/16/01 By: [Signature]

- U.S. Patent No. 4,838,476;
- U.S. Patent No. 4,865,061;
- U.S. Patent No. 4,879,004;
- U.S. Patent No. 4,923,828;
- U.S. Patent No. 4,924,892;
- U.S. Patent No. 4,944,837;
- U.S. Patent No. 4,960,140;
- U.S. Patent No. 4,983,223;
- U.S. Patent No. 5,011,542;
- U.S. Patent No. 5,013,366;
- U.S. Patent No. 5,068,040;
- U.S. Patent No. 5,105,556;
- U.S. Patent No. 5,143,103;
- U.S. Patent No. 5,158,704;
- U.S. Patent No. 5,174,917;
- U.S. Patent No. 5,185,058;
- U.S. Patent No. 5,185,296;
- U.S. Patent No. 5,193,560;
- U.S. Patent No. 5,213,619;
- U.S. Patent No. 5,215,592;
- U.S. Patent No. 5,225,173;
- U.S. Patent No. 5,236,602;
- U.S. Patent No. 5,237,824;
- U.S. Patent No. 5,261,965;
- U.S. Patent No. 5,266,205;
- U.S. Patent No. 5,267,455;
- U.S. Patent No. 5,274,129;
- U.S. Patent No. 5,288,333;
- U.S. Patent No. 5,290,361;
- U.S. Patent No. 5,294,261;
- U.S. Patent No. 5,304,515;
- U.S. Patent No. 5,306,350;
- U.S. Patent No. 5,313,965;

- U.S. Patent No. 5,316,591;
- U.S. Patent No. 5,334,332;
- U.S. Patent No. 5,334,493;
- U.S. Patent No. 5,337,446;
- U.S. Patent No. 5,352,327;
- U.S. Patent No. 5,355,901;
- U.S. Patent No. 5,356,538;
- U.S. Patent No. 5,368,171;
- U.S. Patent No. 5,370,740;
- U.S. Patent No. 5,377,705;
- U.S. Patent No. 5,401,322;
- U.S. Patent No. 5,403,621;
- U.S. Patent No. 5,417,768;
- U.S. Patent No. 5,456,759;
- U.S. Patent No. 5,470,393;
- U.S. Patent No. 5,482,564;
- U.S. Patent No. 5,494,526;
- U.S. Patent No. 5,500,081;
- U.S. Patent No. 5,501,761;
- U.S. Patent No. 5,514,220;
- U.S. Patent No. 5,522,938;
- U.S. Patent No. 5,526,834;
- U.S. Patent No. 5,533,538;
- U.S. Patent No. 5,547,774;
- U.S. Patent No. 5,550,211;
- U.S. Patent No. 5,580,846;
- U.S. Patent No. 5,589,105;
- U.S. Patent No. 5,632,847;
- U.S. Patent No. 5,635,463;
- U.S. Patent No. 5,637,151;
- U.S. Patent No. 5,641,887;
- U.S. Patent No. 5,656,097;
- U.S. Patent No. 5,665,527;

- U.S. Patent No. 5,679,169;
- U.S. Patent No. 5,679,171;
- U.S. Patent No. 5,683,977;
- U.S. Patent No. 5,688,879;
- U.S. Patent No. 5,700,379;
- U.S. Patent No. 5,726,211;
- U.S. Patent No. 5,739,223;
- U.S. Patent No. 5,783,082;
- U.S. Patent No. 5,798,438;
- U.S. Patent No. 5,804,607;
- U.S. Patent No. 5,868,856;
- U.S. Patent No. 5,868,862;
- U.S. Patent No. 5,872,257;
- U.S. Patent No. 5,873,948;
- U.S. Patent No. 5,881,577;
- U.S. Patent No. 5,908,510;
- U.S. Patent No. 5,944,996;
- U.S. Patent No. 5,976,264;
- U.S. Patent No. 5,980,648;
- U.S. Patent No. 6,017,820;
- U.S. Patent No. 6,024,801;
- European Publication No. EP 0 726 099 A2;
- European Publication No. EP 0 587 168 A1;
- European Publication No. EP 0 572 913 A1;
- European Publication No. EP 0 536 752 A2;
- European Publication No. EP 0 283 740 A2;
- European Publication No. EP 0 302 345 A2;
- European Publication No. EP 0 370 233 A1;
- European Publication No. EP 0 391 395;
- Japanese Patent Abstract JP 2-304941;
- Japanese Patent Abstract JP 727711;
- Japanese Patent Abstract JP 1045131;
- Japanese Patent Abstract JP 2-148841;

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U.S. Department of
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Attorney Docket No.: SSI-00700

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(37 CFR § 1.98(b))

U.S. PATENT DOCUMENTS

Examiner Initials		Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
	AA	2,617,719	11/11/52	Stewart	23	312	12/29/50
	AB	3,890,176	06/17/75	Bolon	156	2	12/17/73
	AC	3,900,551	08/19/75	Bardoncelli et al.	423	9	03/02/72
	AD	4,029,517	06/14/77	Rand	134	11	03/01/76
	AE	4,091,643	05/30/78	Zucchini	68	18	02/17/77
	AF	4,341,592	07/27/82	Shories et al.	156	643	08/04/75
	AG	4,474,199	10/02/84	Blaudszun	134	105	11/09/82
	AH	4,475,993	10/09/84	Blander et al.	204	64T	08/15/83
	AI	4,601,181	07/22/86	Privat	68	18	11/17/83
	AJ	4,693,777	09/15/87	Hazano et al.	156	345	11/27/85
	AK	4,749,440	06/7/88	Blackwood et al.	156	646	05/12/87
	AL	4,788,043	11/29/88	Kagiyama et al.	422	292	04/17/86
	AM	4,838,476	06/13/89	Rahn	228	180.1	11/12/87
	AN	4,865,061	09/12/89	Fowler et al.	134	108	07/22/83
	AO	4,879,004	11/07/89	Oesch et al.	203	89.1	05/04/88
	AP	4,923,828	05/08/90	Gluck et al.	437	225	08/07/89
	AQ	4,924,892	05/15/90	Kiba et al.	134	123	07/28/88
	AR	4,944,837	07/31/90	Nishikawa et al.	156	646	02/28/89
	AS	4,960,140	10/02/90	Ishijima et al.	134	31	11/27/85
	AT	4,983,223	01/08/91	Gessner	134	25.4	10/24/89
	AU	5,011,542	04/30/91	Weil	134	38	07/21/88
	AV	5,013,366	05/07/91	Jackson et al.	134	1	12/07/88
	AW	5,068,040	11/26/91	Jackson	210	748	04/03/89
	AX	5,105,556	04/21/92	Kurokawa et al.	34	12	08/09/88
	AY	5,143,103	09/01/92	Basso et al.	134	98.1	01/04/91
	AZ	5,158,704	10/27/92	Fulton et al.	252	309	07/25/90
	BA	5,174,917	12/29/92	Monzyk	252	60	07/19/91
	BB	5,185,058	02/09/93	Cathey, Jr.	156	656	01/29/91
	BC	5,185,296	02/09/93	Morita et al.	437	229	04/24/91
	BD	5,193,560	03/16/93	Tanaka et al.	134	56R	06/24/91
	BE	5,213,619	05/25/93	Jackson et al.	134	1	11/30/89
	BF	5,215,592	06/01/93	Jackson	134	1	01/22/91
	BG	5,225,173	07/06/93	Wai	423	2	10/25/91
	BH	5,236,602	08/17/93	Jackson	210	748	01/28/91
	BI	5,237,824	08/24/93	Pawliszyn	62	51.1	10/12/90
	BJ	5,261,965	11/16/93	Moslehi	134	1	08/28/92

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(37 CFR § 1.98(b))

U.S. PATENT DOCUMENTS

Examiner Initials		Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
	BK	5,266,205	11/30/93	Fulton et al.	210	639	07/01/92
	BL	5,267,455	12/07/93	Deweese et al.	68	5	07/13/92
	BM	5,274,129	12/28/93	Natale et al.	549	349	06/12/91
	BN	5,288,333	02/22/94	Tanaka et al.	134	31	07/29/92
	BO	5,290,361	03/01/94	Hayashida et al.	134	2	01/23/92
	BP	5,294,261	03/15/94	McDermott et al.	134	7	11/02/92
	BQ	5,304,515	04/19/94	Morita et al.	437	231	08/07/92
	BR	5,306,350	04/26/94	Hoy et al.	134	22	04/27/92
	BS	5,313,965	05/24/94	Palen	134	61	06/01/92
	BT	5,316,591	05/31/94	Chao et al.	134	34	08/10/92
	BU	5,334,332	08/02/94	Lee	252	548	07/09/92
	BV	5,334,493	08/02/94	Fujita et al.	430	463	09/29/93
	BW	5,337,446	08/16/94	Smith et al.	15	21.1	10/27/92
	BX	5,352,327	10/04/94	Witowski	156	646	07/10/92
	BY	5,355,901	10/18/94	Mielnik et al.	134	105	10/27/92
	BZ	5,356,538	10/18/94	Wai et al.	210	634	10/21/91
	CA	5,368,171	11/29/94	Jackson	134	147	07/20/92
	CB	5,370,740	12/06/94	Chao et al.	134	1	10/01/93
	CC	5,377,705	01/03/95	Smith, Jr. et al.	134	95.3	09/16/93
	CD	5,401,322	03/28/95	Marshall	134	13	06/30/92
	CE	5,403,621	04/4/95	Jackson et al.	427	255.1	10/01/93
	CF	5,417,768	05/23/95	Smith, Jr. et al.	134	10	12/14/93
	CG	5,456,759	10/10/95	Stanford, Jr. et al.	134	1	08/01/94
	CH	5,470,393	11/28/95	Fukazawa	134	13	07/08/94
	CI	5,482,564	01/09/96	Douglas et al.	134	18	06/21/94
	CJ	5,494,526	02/27/96	Paranjpe	134	1	05/04/95
	CK	5,500,081	03/19/96	Bergman	156	646.1	12/05/94
	CL	5,501,761	03/26/96	Evans et al.	156	344	10/18/94
	CM	5,514,220	05/07/96	Wetmore et al.	134	22.18	12/09/92
	CN	5,522,938	06/04/96	O'Brien	134	1	08/08/94
	CO	5,526,834	06/18/96	Mielnik et al.	134	105	08/17/94
	CP	5,533,538	07/09/96	Marshall	134	104.4	12/01/94
	CQ	5,547,774	08/20/96	Gimzewski et al.	428	694	09/01/93
	CR	5,550,211	08/27/96	DeCrosta et al.	528	480	12/17/92
	CS	5,580,846	12/03/96	Hayashida et al.	510	175	01/09/95
	CT	5,589,105	12/31/96	DeSimone et al.	252	351	05/18/95

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U.S. PATENT DOCUMENTS

Examiner Initials		Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
	CU	5,632,847	05/27/97	Ohno et al.	156	344	04/24/95
	CV	5,635,463	06/03/97	Muraoka	510	175	07/19/95
	CW	5,637,151	06/10/97	Schulz	134	2	06/27/94
	CX	5,641,887	06/24/97	Beckman et al.	546	26.2	04/01/94
	CY	5,656,097	08/12/97	Olesen et al.	134	1	12/21/94
	CZ	5,665,527	09/09/97	Allen et al.	430	325	02/03/97
	DA	5,679,169	10/21/97	Gonzales et al.	134	1.3	12/19/95
	DB	5,679,171	10/21/97	Saga et al.	134	3	03/06/96
	DC	5,683,977	11/04/97	Jureller et al.	510	286	03/06/95
	DD	5,688,879	11/18/97	DeSimone	526	89	02/17/97
	DE	5,700,379	12/23/97	Biebl	216	2	02/14/96
	DF	5,726,211	03/10/98	Hedrick et al.	521	617	03/21/96
	DG	5,739,223	04/14/98	DeSimone	526	89	09/18/95
	DH	5,783,082	07/21/98	DeSimone et al.	210	634	11/03/95
	DI	5,798,438	08/25/98	Sawan et al.	528	483	09/09/96
	DJ	5,804,607	09/08/98	Hedrick et al.	521	64	10/16/97
	DK	5,868,856	02/09/99	Douglas et al.	134	2	07/23/97
	DL	5,868,862	02/09/99	Douglas et al.	134	26	07/31/97
	DM	5,872,257	02/16/99	Beckman et al.	546	336	04/01/97
	DN	5,873,948	02/23/99	Kim	134	19	06/24/97
	DO	5,881,577	06/16/99	Sauer et al.	68	5	09/09/96
	DP	5,908,510	06/01/99	McCullough et al.	134	2	10/16/96
	DQ	5,944,996	08/31/99	DeSimone et al.	210	634	05/02/97
	DR	5,976,264	11/02/99	McCullough et al.	134	2	11/30/98
	DS	5,980,648	11/09/99	Adler	134	34	12/30/93
	DT	6,017,820	01/25/00	Ting et al.	438	689	07/17/98
	DU	6,024,801	02/15/00	Wallace et al.	134	1	12/09/96

FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS

		Document Number	Publication Date	Country / Patent Office	Class	Subclass	Translation	
							Yes	No
	DV ✓	EP 0 726 099 A2	8/14/96	EPO	B08B	5/00		x
	DW ✓	EP 0587 168 A1	3/16/94	EPO	B08B	7/00		x
	DX ✓	EP 0 572 913 A1	12/8/93	EPO	B01D	11/02		x

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							Yes	No
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	DZ ✓	JP 2-304941	12/18/90	Japan	H01L	21/56		X
	EA ✓	EP 0 283 740 A2	09/28/88	EPO	C22B	3/00		X
	EB ✓	EP 0 302 345 A2	02/08/89	EPO	C22B	3/00		X
	EC ✓	EP 0 370 233 A1	05/30/90	EPO	C22B	3/00		X
	ED ✓	EP 0 391 035	10/10/90	EPO	C23G	5/00		X
	EE	JP 727711	02/13/96	Japan	H01L	021/027		
	EF ✓	JP 1045131	02/17/89	Japan	B01D	011/04		
	EG ✓	JP 2-148841	06/07/90	Japan	H01L	21/306		X
	EH ✓	JP 7142333	06/02/95	Japan	H01L	021/027		
	EI ✓	JP 8222508	08/30/96	Japan	H01L	021/027		
	EJ ✓	JP 60-192333	09/30/85	Japan	H01L	21/30	X	
	EK ✓	JP 62-125619	06/06/87	Japan	H01L	21/30		X
	EL ✓	WO 90/06189	06/14/90	WIPO	B08B	7/00		X
	EM ✓	WO 90/13675	11/15/90	WIPO	C22B	3/00		X

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EN ✓	Guan, Z. et al., "Fluorocarbon-Based Heterophase Polymeric Materials. 1. Block Copolymer Surfactants for Carbon Dioxide Applications," <i>Macromolecules</i> , Vol. 27, 1994, pp 5527-5532.
EO	International Journal of Environmentally Conscious Design & Manufacturing, Vol. 2, No. 1, 1993, p. 83.
EP	Journal of the American Ceramic Society, Vol. 72, No. 6, pp. 872-874.
EQ ✓	Ziger, D.H. et al., "Compressed Fluid Technology: Application to RIE Developed Resists," <i>AIChE Journal</i> , Vol. 33, No. 10, October 1987, pp 1585-1591.
ER ✓	Kirk-Othmer, "Encyclopedia of Chemical Terminology," 3rd ed., Supplement Volume, "Alcohol Fuels to Toxicology," 1984, pp. 872-893.
ES ✓	"Cleaning with Supercritical CO ₂ ," NASA Tech Briefs, MFS-29611, Marshall Space Flight Center, Alabama, March 1979.
ET	Basta, N., "Supercritical Fluids: Still Seeking Acceptance," <i>Chemical Engineering</i> , Vol. 92, No. 3, 2/24/85, 14
EU ✓	Takahashi, D., "Los Alamos Lab finds way to cut chip toxic waste," <i>Wall Street Journal</i> , June 22, 1998.
EV ✓	"Supercritical CO ₂ process offers less mess from semiconductor plants, <i>Chemical Engineering Magazine</i> , pp. 27 & 29, July 1998.
EW ✓	Sun, Y.P. et al., "Preparation of polymer-protected semiconductor nanoparticles through the rapid expansion of supercritical fluid solution," <i>Chemical Physics Letters</i> , pp. 585-588, May 22, 1998.
EX ✓	Jackson, K. et al., "Surfactants and Micromulsions in Supercritical Fluids" in "Supercritical Fluid Cleaning," Noyes Publications, Westwood, NJ, pp. 87-120, Spring 1998
EY ✓	Kryszewski, M., "Production of Metal and Semiconductor Nanoparticles in Polymer Systems," <i>Polymer</i> , pp. 65-73, February 1998
EZ ✓	Bakker, G.L. et al., "Surface Cleaning and Carbonaceous Film Removal Using High Pressure, High Temperature Water, and Water/CO ₂ Mixtures," <i>J. Electrochem. Soc.</i> , Vol. 145, No. 1, pp. 284-291, Jan. 98.
FA ✓	Ober, C.K. et al., "Imaging polymers with supercritical carbon dioxide," <i>Advanced Materials</i> , Vol. 9, No. 13, 99. 1039-1043, 3 Nov 1997
FB ✓	Russick, E.M. et al., "Supercritical carbon dioxide extraction of solvent from micromachined structures." <i>Supercritical Fluids Extraction and Pollution Prevention</i> , ACS Symposium Series, Vol. 670, pp. 255-269, 21 Oct 1997

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OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

FC	✓	Dahmen, N. et al., "Supercritical fluid extraction of grinding and metal cutting waste contaminated with oils," "Supercritical Fluids - Extraction and Pollution Prevention, ACS Symposium Series, Vol. 670, pp. 270-279, 21 Oct 1997
FD	✓	Wai, C.M., "Supercritical fluid extraction: metals as complexes," J. Chromatography A, Vol. 785, pp. 369-383, 17 Oct 1997
FE	✓	Xu, C. et al., Submicron-sized spherical yttrium oxide based phosphors prepared by supercritical CO ₂ -assisted aerosolization and pyrolysis," Appl. Phys. Lett., Vol. 71, No. 12, September 22, 1997
FF	✓	Tomioka Y. et al., "Decomposition of tetramethylammonium (TMA) in a positive photoresist developer by supercritical water," Abstracts of Papers 214 th ACS Natl Meeting, American Chemical Society, Abstract no. 108, September 7, 1997
FG	✓	Klein, H. et al., "Cyclic organic carbonates serve as solvents and reactive diluents," Coatings Worlds, pp. 38-40, May 1997
FH	✓	Buhler, J. et al., Liner array of complementary metal oxide semiconductor double-pass metal micromirrors," Opt. Eng., Vol. 36, No. 5, pp. 1391-1398, May 1997
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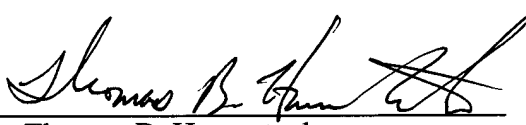
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Respectfully submitted,
HAVERSTOCK & OWENS LLP

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